Fast & Fluid Management

Manual HA450

English

Chapter 4:
Service manual

Inhoud

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Safety instructions

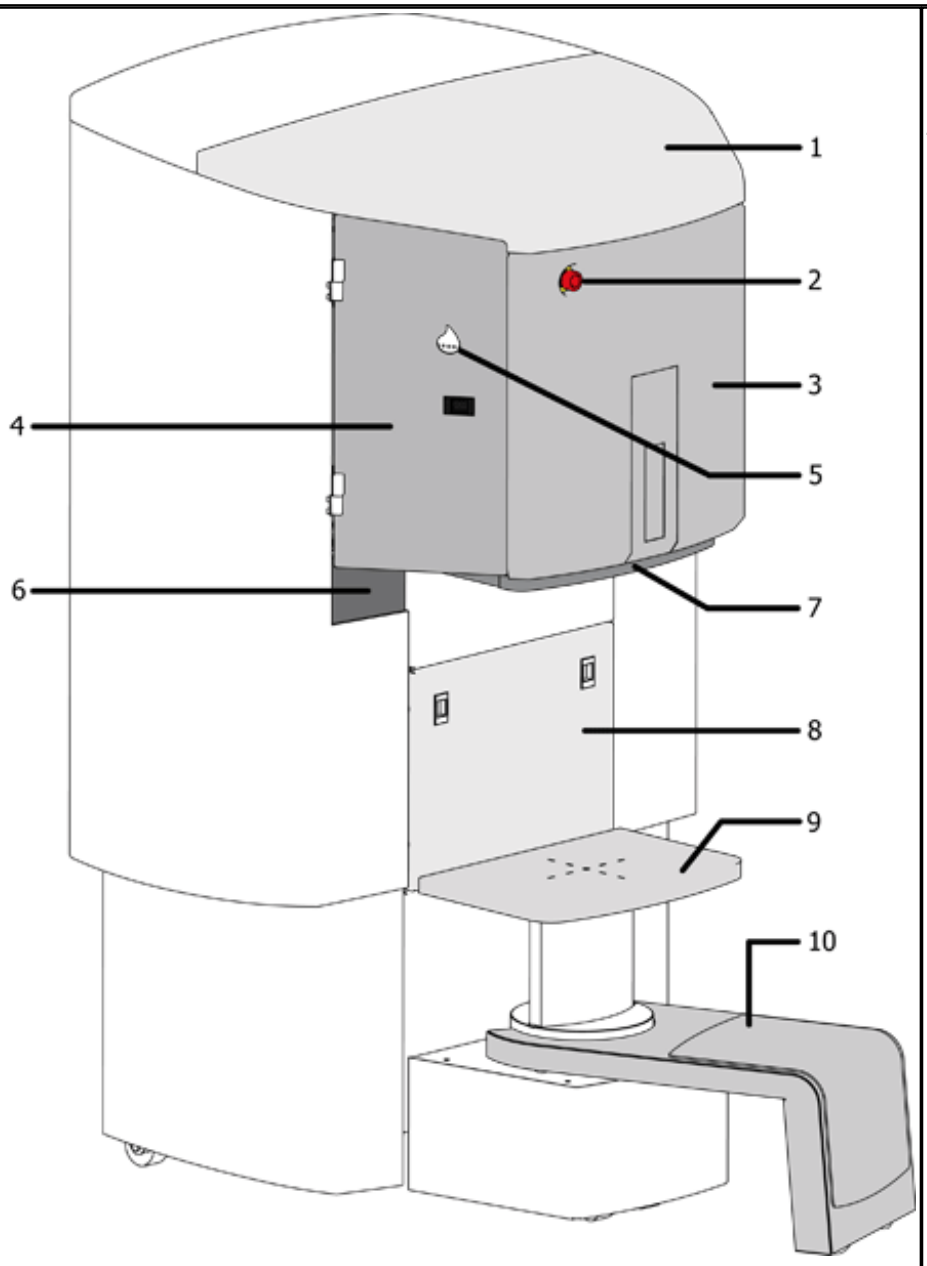
	Caution! Read the manual thoroughly before installation or using the dispenser. It is important for your own safety and to avoid damaging the equipment.

F&FM will not accept any liability if the following instructions are not observed:

1. Do not use damaged dispensers (damage might occur during transportation). When in doubt, always contact your servicer or supplier before proceeding.
2. Always install and connect the dispenser according to the installation instructions.
3. All local safety regulations and decrees must be observed.
4. Connect the dispenser only to a fixed socket outlet with safety ground and 230 V / 50 Hz or 100-110 V / 50-60 Hz, according to the instructions.
5. The user should make sure that the dispenser is kept in good conditions; defective components should be replaced immediately.
6. In order to avoid physical injury, during normal usage, all doors should be closed and all panels fixed.
7. Maintenance operations that go beyond routine operations should only be performed by qualified technicians. During repairs the power cord should be safely removed from the fixed socket outlet.

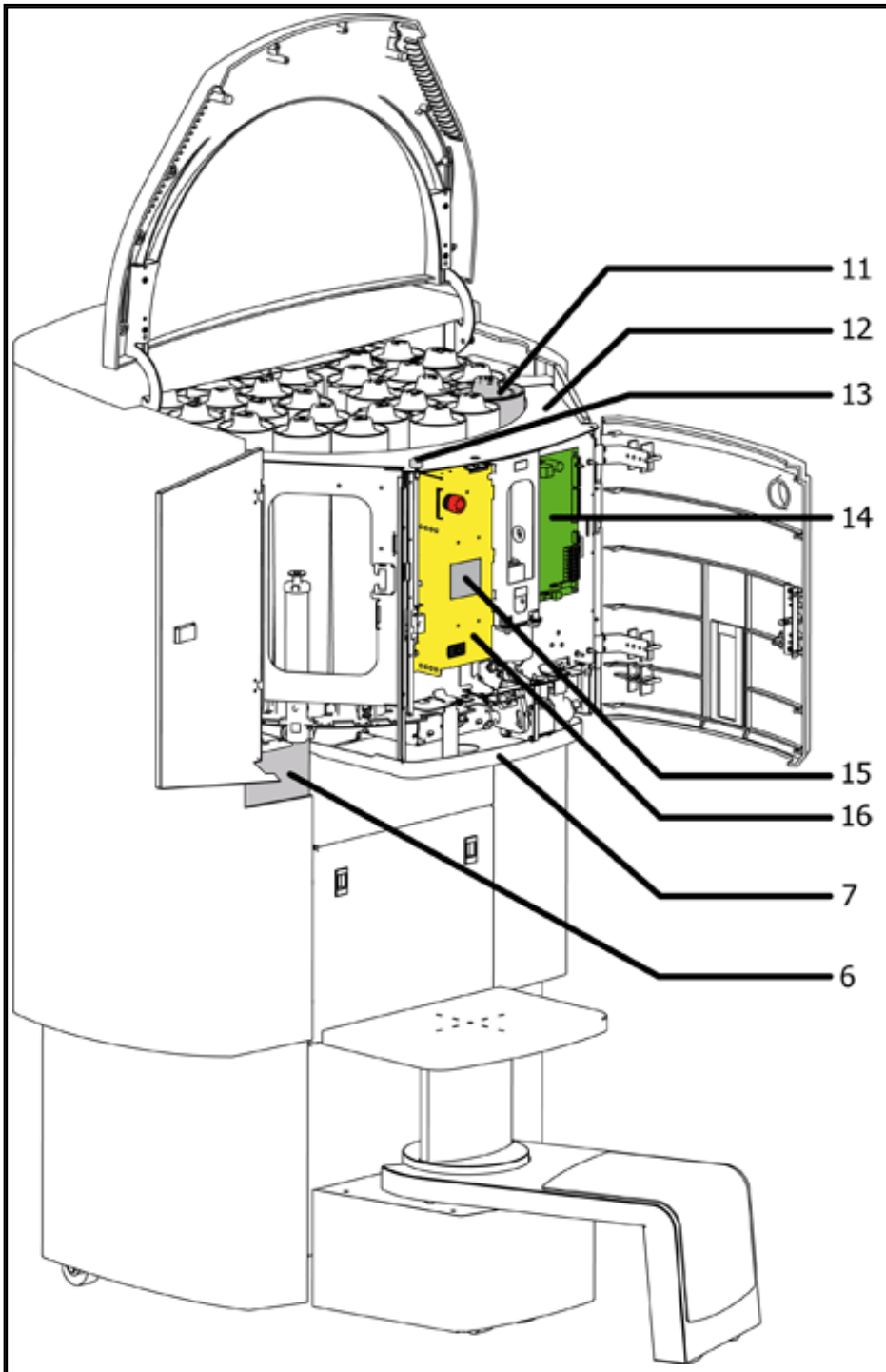
	Caution! MOVING PARTS CAN CAUSE INJURY. Always disconnect power (by removing power cord from socket) before approaching moving parts.
	Caution, do not damage outside panels of the dispenser with tools during unpacking.
	Attention! Switching off dispenser with emergency stop button will also switch off stirring mechanism.
	Dispensing is mainly done by software. Consequently, please read the software manual thoroughly to get to know all the possibilities.
	Consult the software manual for installation instructions.
	Attention! Dispose the used cleaning liquid in de chemical container.
	Only use cleaning liquids that were recommended by your colorant supplier. Otherwise the system might get clogged.
	In the case of the easy brush option: only use new and clean liquid in the liquid tank, to avoid clogging
	Always close the canisters in order to protect the colorant from drying.
	Always close the upper cover of the dispenser; otherwise the machine will not stir!

Dispenser summary



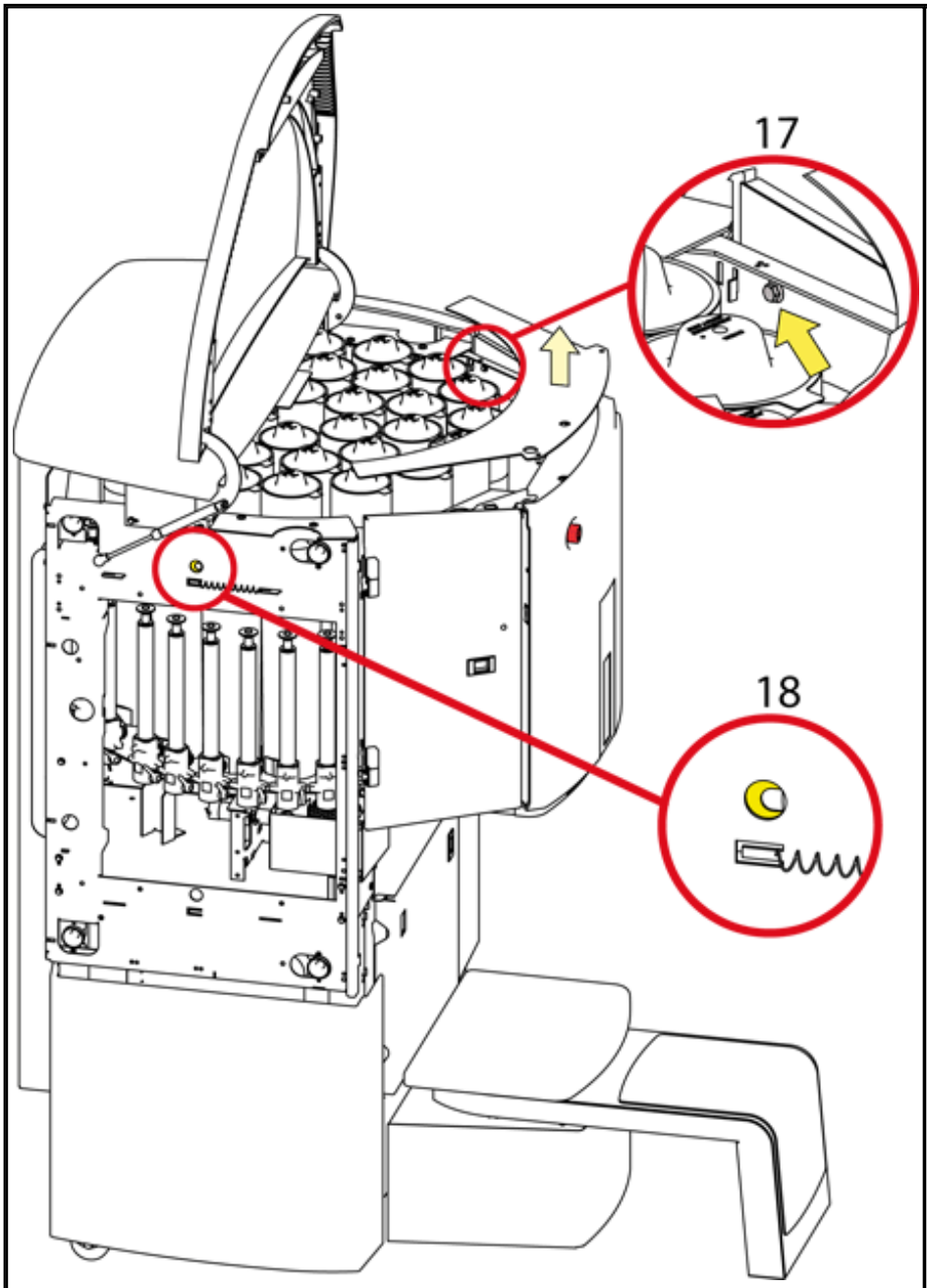
im. 4-1

1. Upper cover (Access to fill canisters)
2. Emergency stop switch
3. Maintenance panel: 'mechanics'
4. Maintenance panel: 'brush container'
5. Easy brush indicator light
6. Brush container
7. Switchplate
8. Maintenance panel: PC access
9. Cantable
10. Step



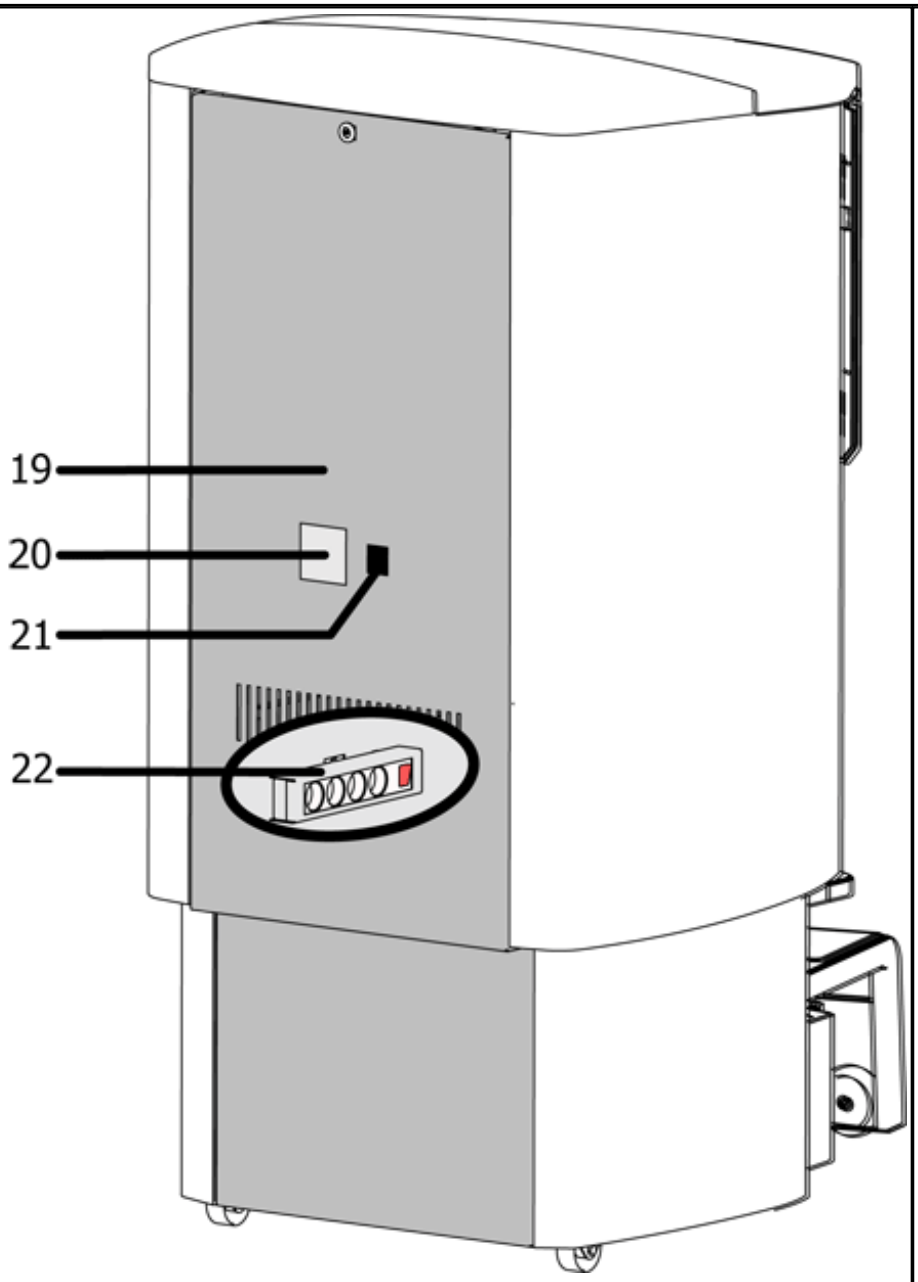
im. 4-2

11. Canister
12. Covering plate
13. button to open maintenance panel 'mechanics'
14. 'Powerboard'
15. Type plate 1 see:"Recognise your machine"
16. Power supply unit



im. 4-3

17. Locking screw
18. Sidepanel-interlock



im. 4-4

19. Back panel
20. Type plate 2 see: "Recognise your machine"
21. Netentry + fuse
22. Outlet socket (inside dispenser)

Type plate 1 on the front of the machine

see:dispenser summary #15

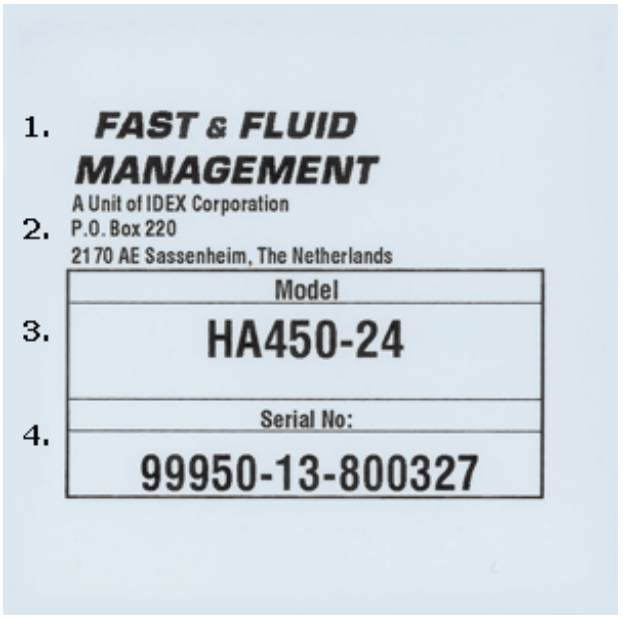
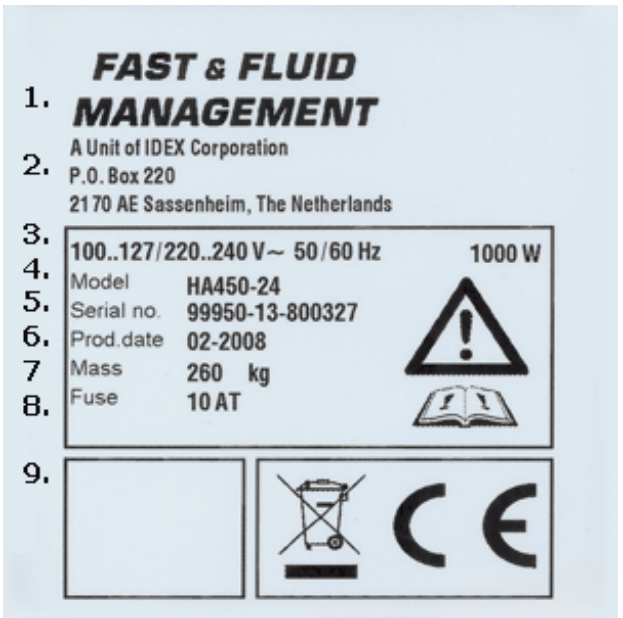


fig. 4-5

1. Manufacturer name
2. Address
3. Dispenser type
4. Serial number

Type plate 2 on the rear side of the machine

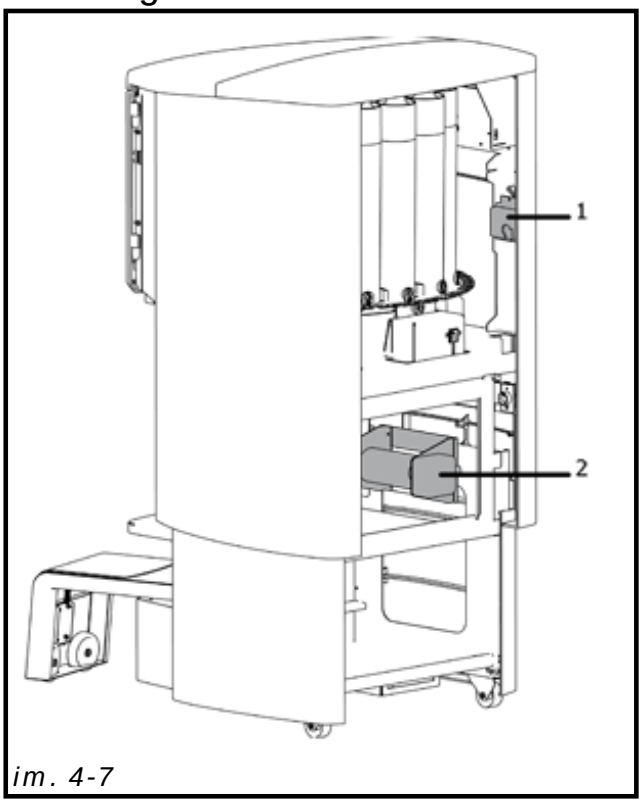
see:dispenser summary #20



im. 4-6

1. Manufacturer name
2. Address
3. Connection specifications
4. Dispenser type
5. Serial number
6. Production date
7. Weight
8. Fuse (10AT)
9. CE & WEEE marking

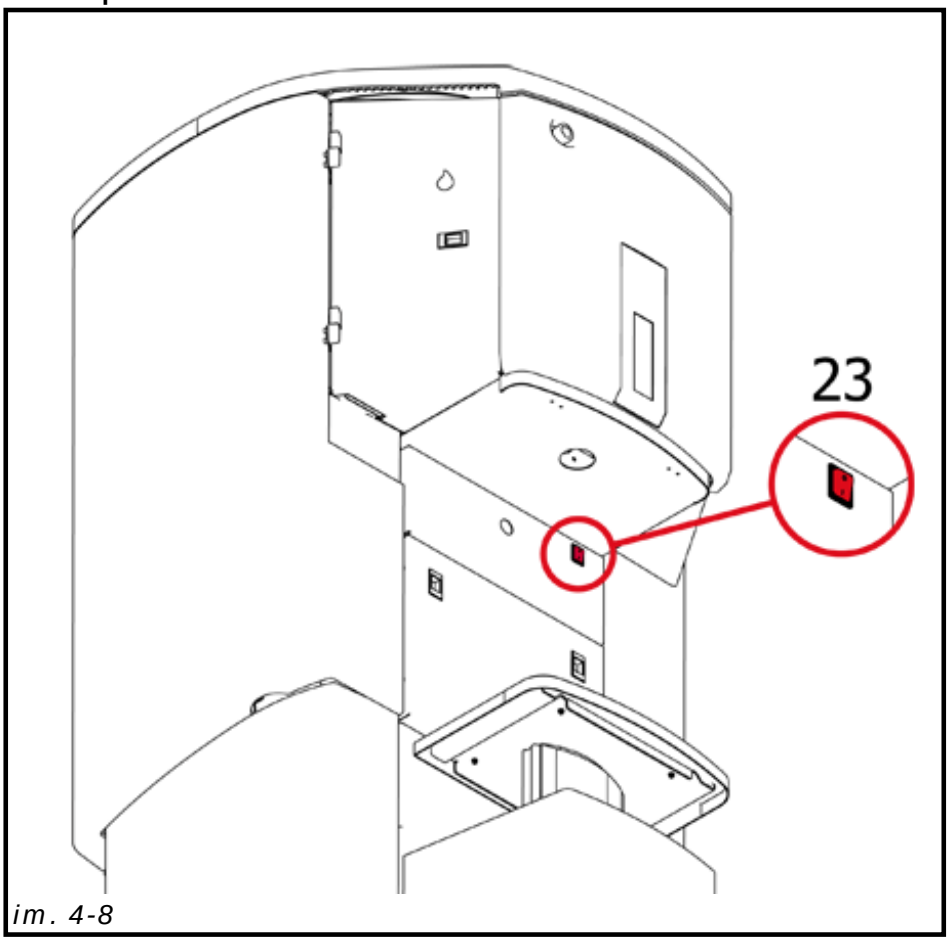
Heating set



im. 4-7

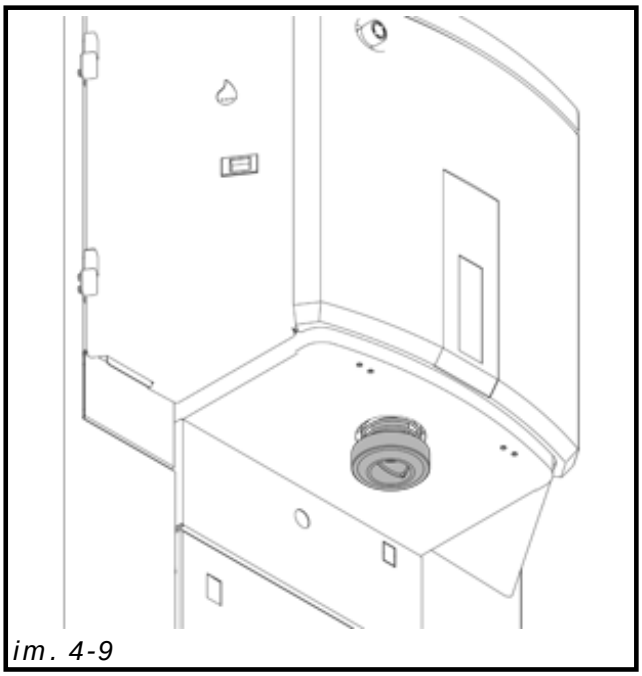
> 1. Thermostat
> 2. Heating element

Computer switch



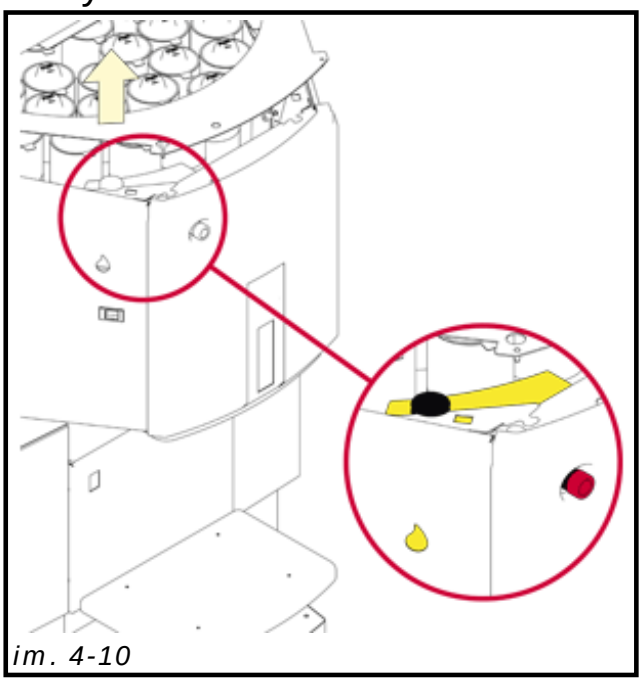
im. 4-8

Punch



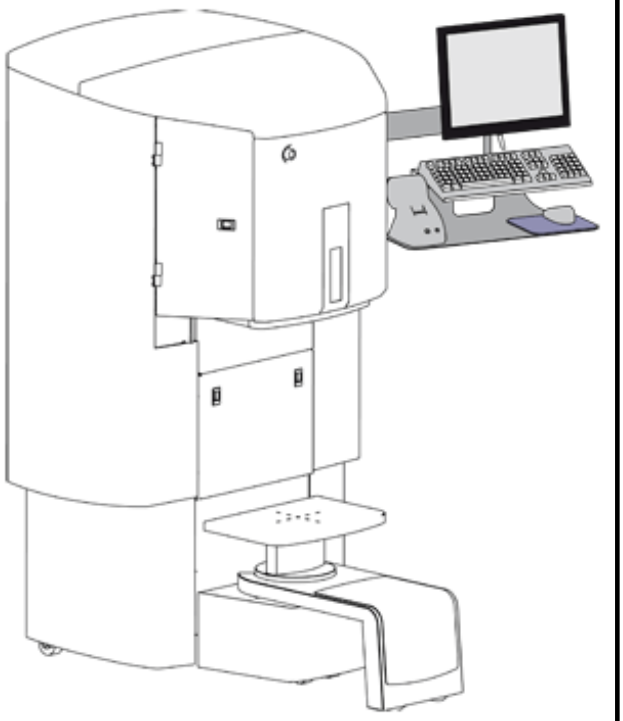
im. 4-9

Easy brush



im. 4-10

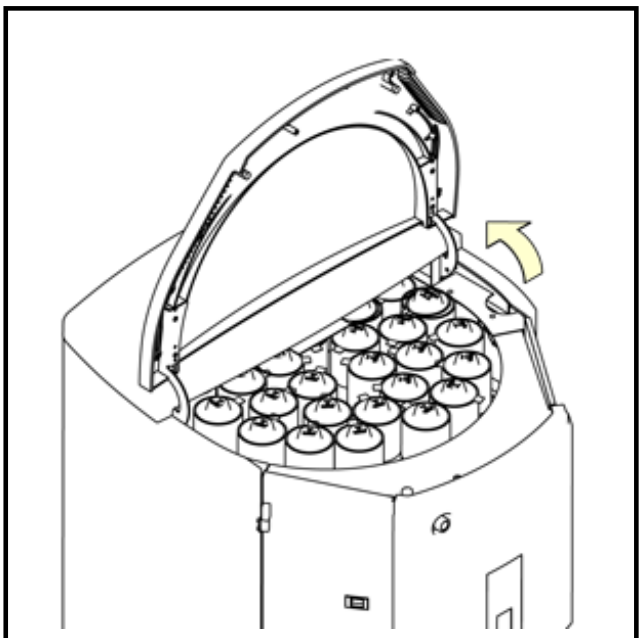
Monitor keyboard arm



im. 4-11

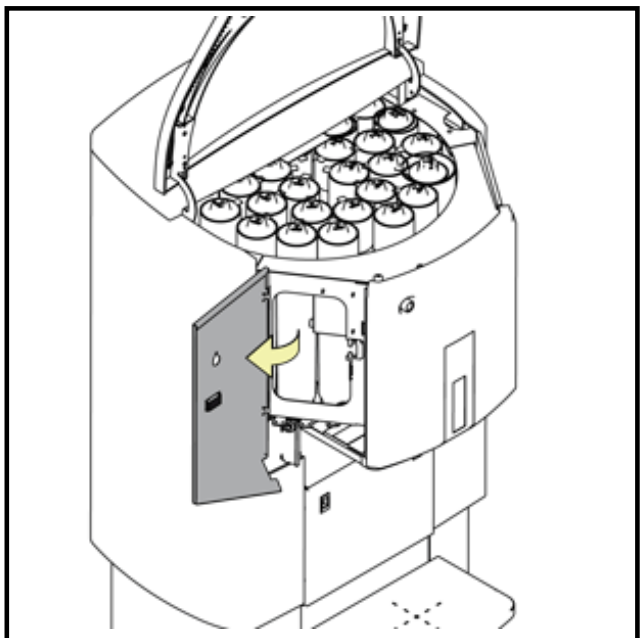
Maintenance panels

Panels that can be opened by the user for usage and maintenance of the machine:



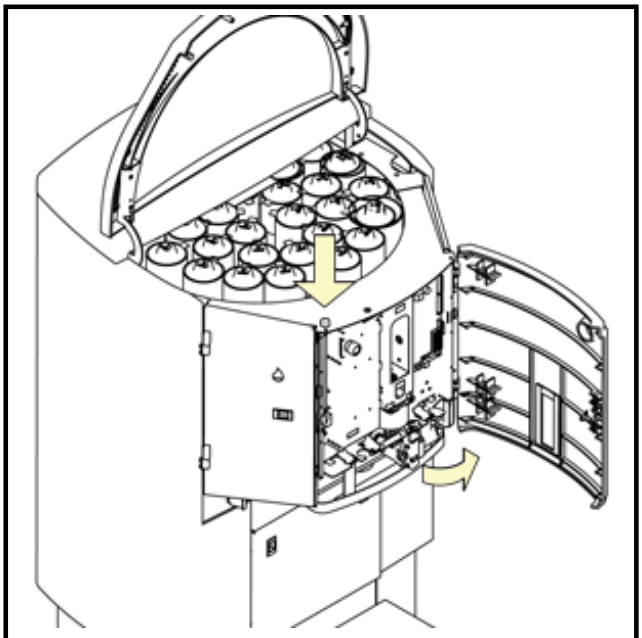
im. 4-12

Canister access.



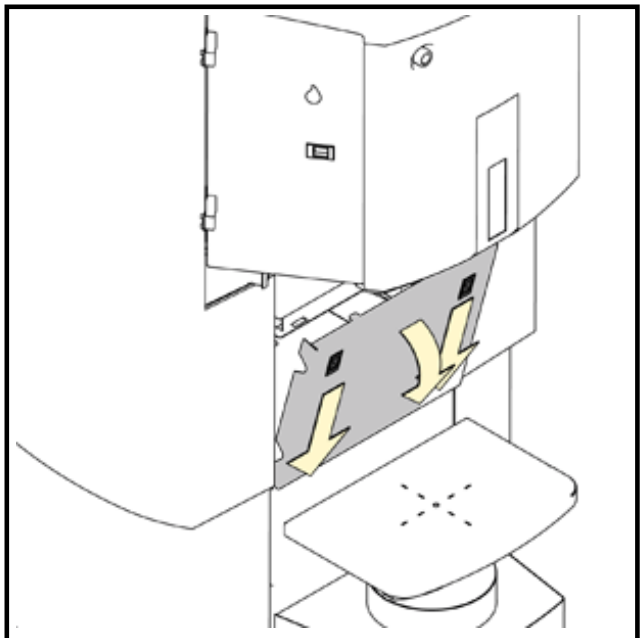
im. 4-13

Brush container access.



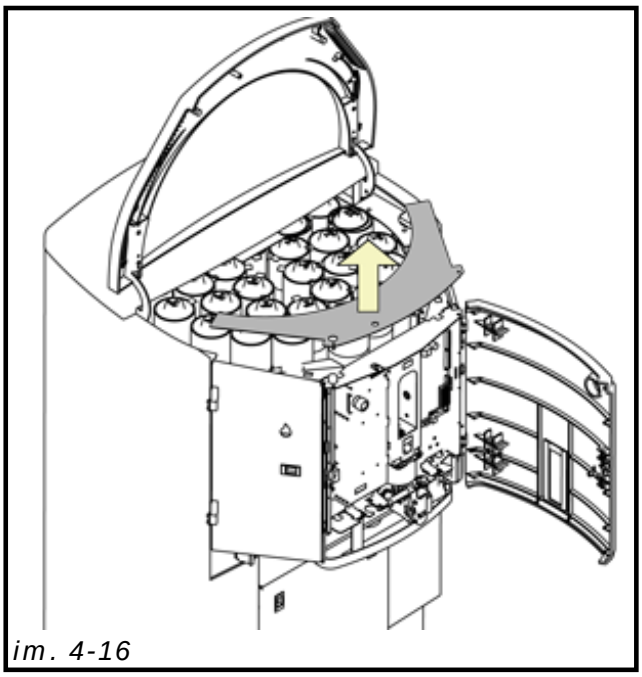
im. 4-14

Mechanics access.



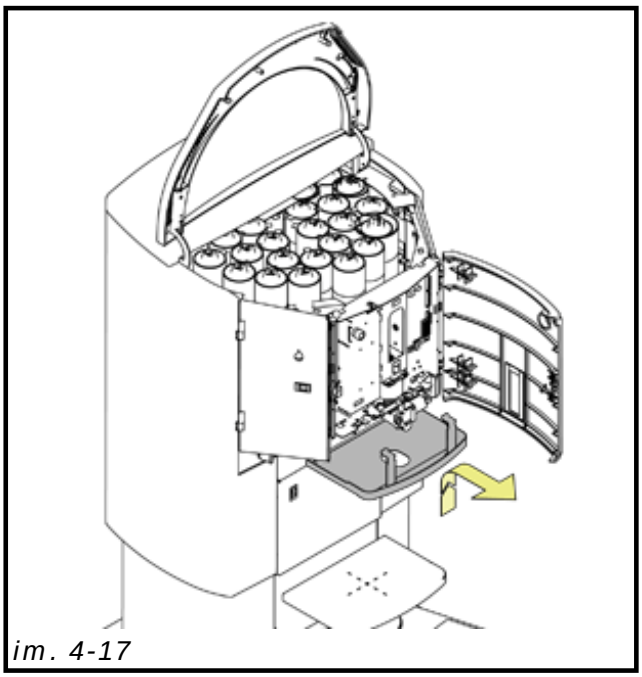
im. 4-15

Computer access.



im. 4-16

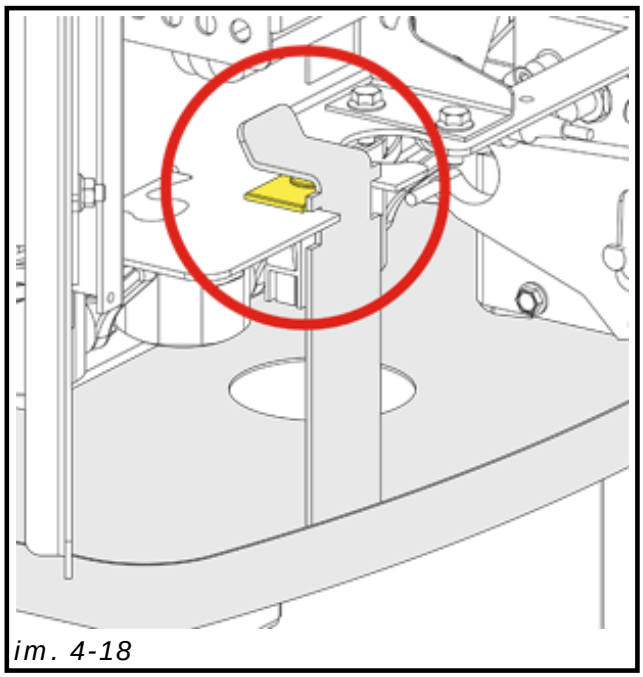
Covering plate.



im. 4-17

Switchplate out.

1. First up
2. Then towards you.

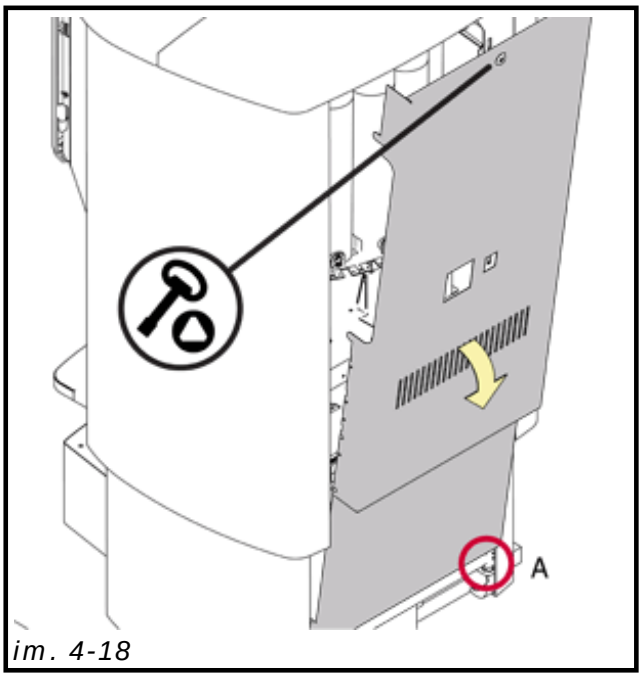


im. 4-18

Make sure that when putting back the hooks of the switchplate they are above the two switches.

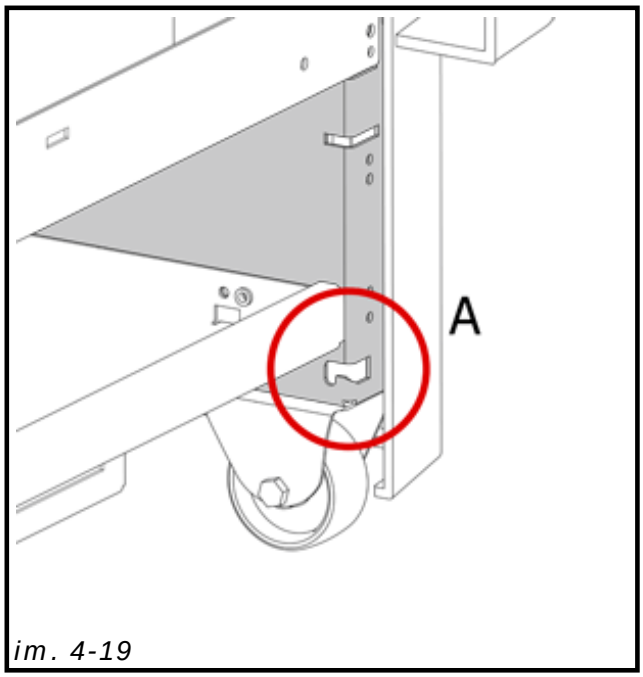
Service panels

Panels that should only be removed by trained technicians:



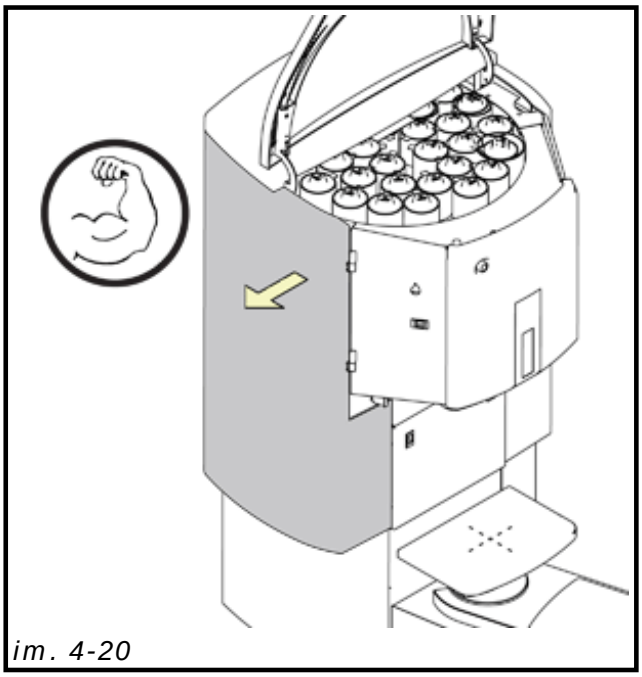
im. 4-18

Back panel, to be opened with triangular key, gives access to the pumps and the canisters, the turning table motor and the computer.



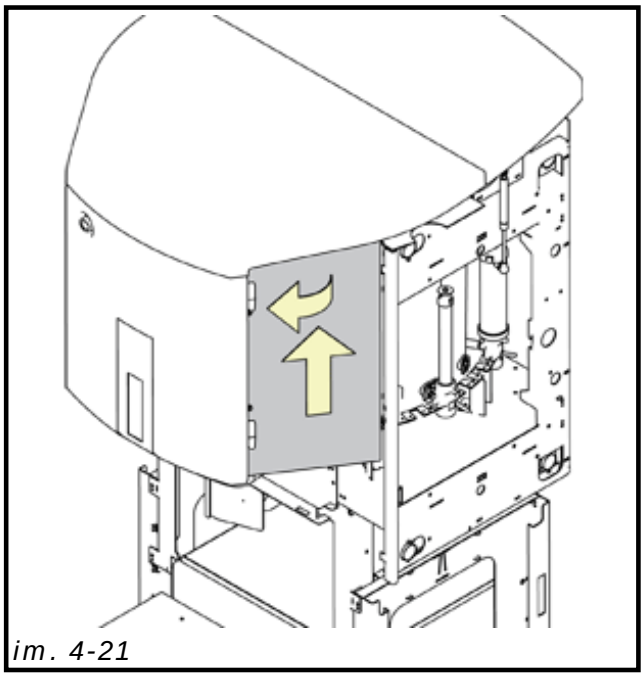
im. 4-19

Hook hole back panel.



im. 4-20

L/R side panels: Before removing the side panels, they must be unlocked. This is done automatically when removing the back panel. Reassemble the panels in reverse order.

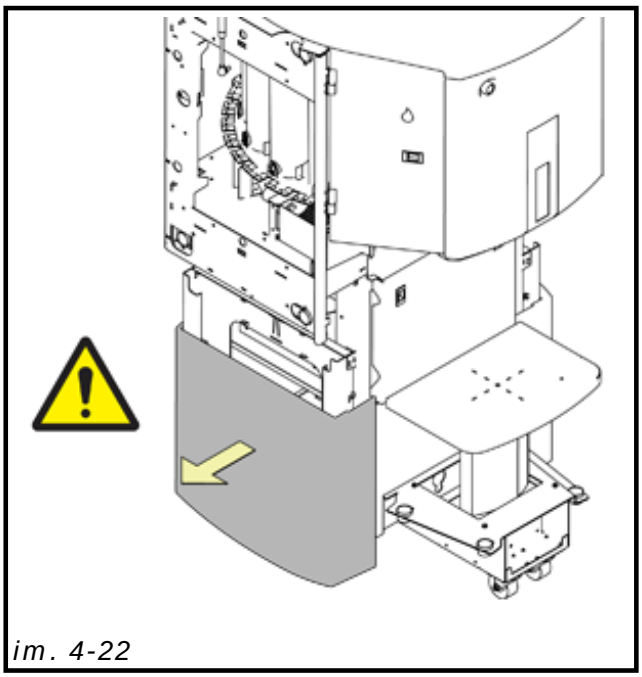


im. 4-21

Door on the right. Loosen locking screw see:dispenser summary #16; slide up + turn away. Do not forget to put the locking screw back afterwards.

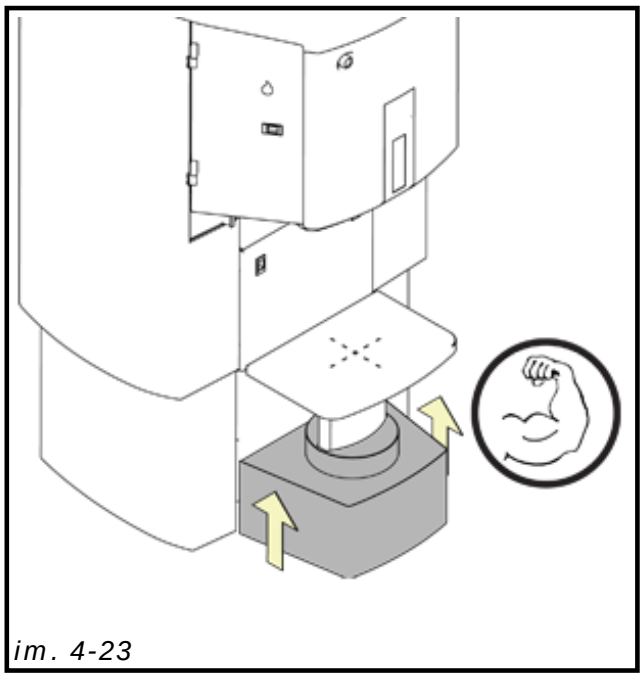
Other panels

Although there are no vital parts behind the following panels, in some cases it can be useful to remove them:



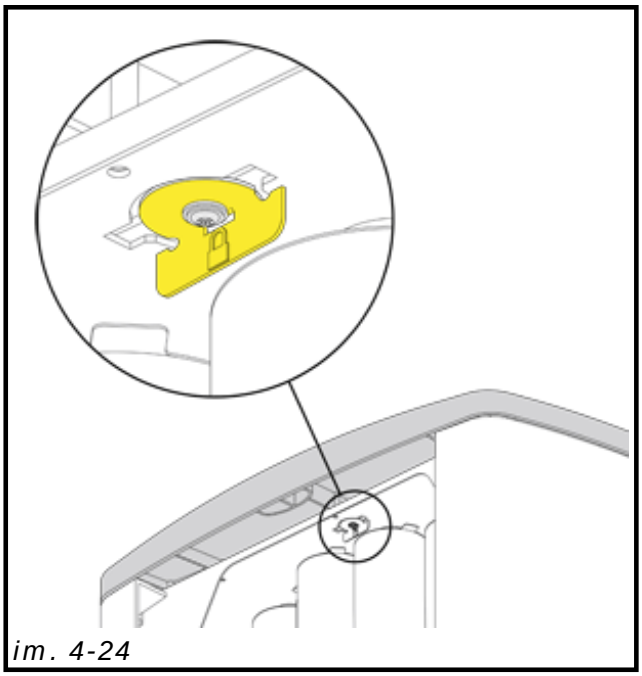
im. 4-22

Lower side panels; carefully unlock th snap connections(4x) from the inside. Watch out for sharp edges. Removing these panels is not advisable, because the chance of damaging the panel is very big.

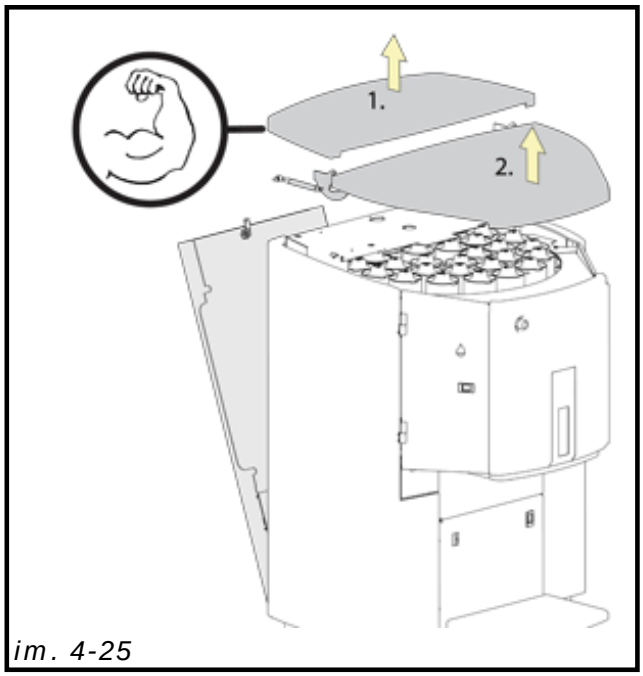


im. 4-23

Cantable- hood (first remove step).



im. 4-24



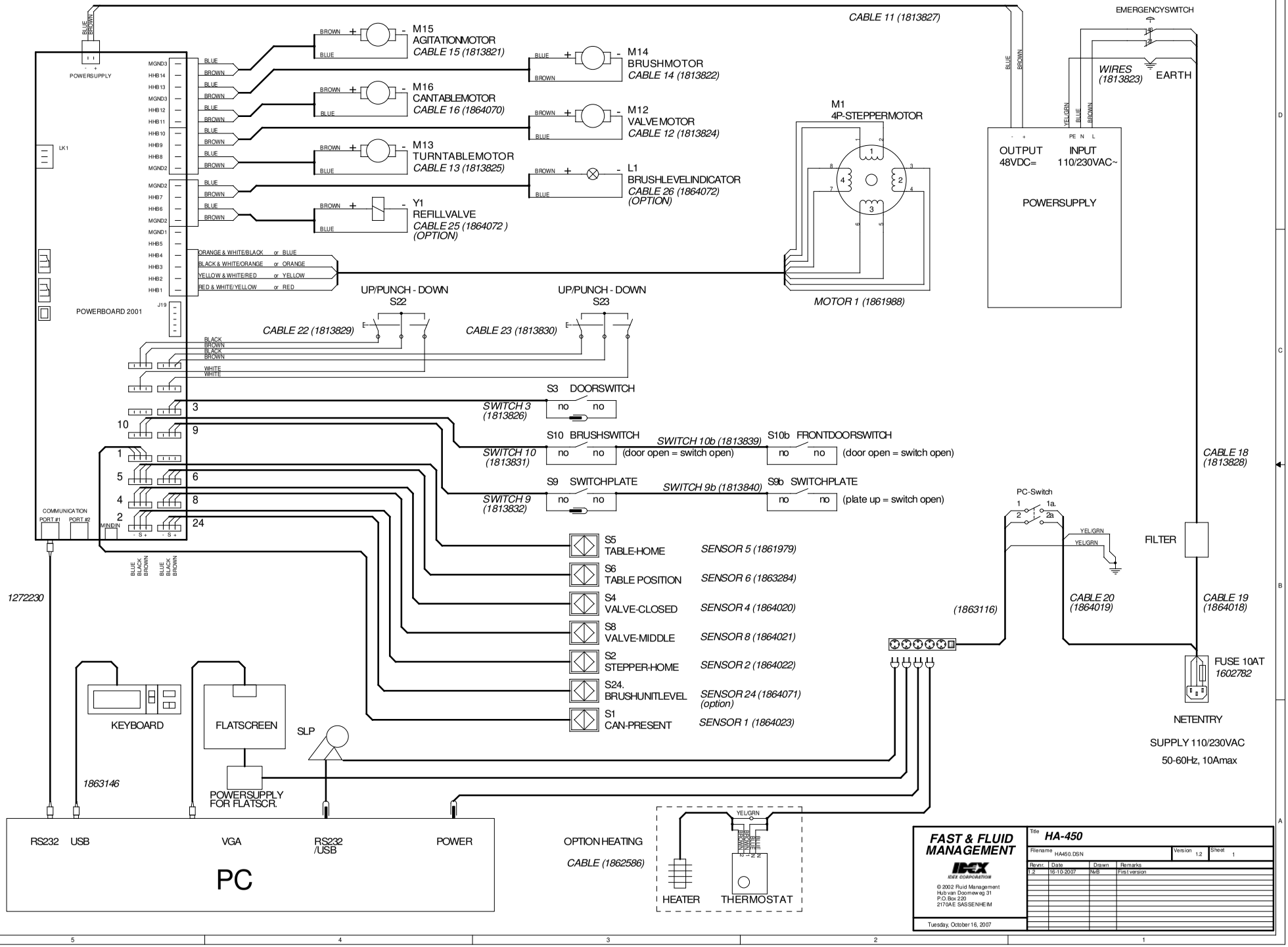
im. 4-25

Upper panels: Rear (#1): Unlock the panel by turning the locking plate 180°. Then loosen the snap-connections by pulling up the panel with some force. Front (#2): The cover can be removed by loosening both dampers and hinges.

Specifications

Number of canisters	32 max.
Canister content	2, 3, 6, 10 liter
Pump type	piston pump
Pump capacity	2, 5, 10 ounce
Min. dispense	1/384 fl.oz
Accuracy	0.004 ml/step
Maximum flow speed 2, 5, 10 oz *	0.4 L/min / 1 L/min / 2 L/min
Nozzle diameter	2 and 4.5 mm
Maximal can height	42cm (low.), 46cm (std.), 62cm (max.)
Can table dimensions	44 x 31 cm
Cleaning system	standard
Can sensor	standard
Stirring timer	standard
Adjustable lifting platform	electric
Heating set	option
Monitor keyboard arm	option
Punch, automatic	option
'Easy brush' automatic refilling system	option
Dimensions (H x W x D)	151 / 171 x 88 x 96 cm
Power supplies	110V +/- 10%, 50Hz/60Hz
	230V +/- 10%, 50Hz/60Hz
CE approved.	

*) Theoretical value, depending on the colorant that is used.


CABLE 11 (1813827)
EMERGENCYSWITCH
WIRES (1813823)
EARTH
M15 AGITATIONMOTOR
CABLE 15 (1813821)
M14 BRUSHMOTOR
CABLE 14 (1813822)
M16 CANTABLEMOTOR
CABLE 16 (1864070)
M12 VALVE MOTOR
CABLE 12 (1813824)
M13 TURNTABLEMOTOR
CABLE 13 (1813825)
L1 BRUSHLEVELINDICATOR
CABLE 26 (1864072)
(OPTION)
Y1 REFILLVALVE
CABLE 25 (1864072)
(OPTION)
M1 4P-STEPPERMOTOR
MOTOR 1 (1861988)
POWERSUPPLY
OUTPUT 48VDC=
INPUT 110/230VAC~
POWERSUPPLY
POWERBOARD 2001
UP/PUNCH - DOWN S22
UP/PUNCH - DOWN S23
CABLE 22 (1813829)
CABLE 23 (1813830)
S3 DOORSWITCH
SWITCH 3 (1813826)
S10 BRUSHSWITCH
SWITCH 10 (1813831)
SWITCH 10b (1813839)
S10b FRONTDOORSWITCH
(door open = switch open)
S9 SWITCHPLATE
SWITCH 9 (1813832)
SWITCH 9b (1813840)
S9b SWITCHPLATE
(plate up = switch open)
CABLE 18 (1813828)
PC-Switch
FILTER
S5 TABLE-HOME
SENSOR 5 (1861979)
S6 TABLE POSITION
SENSOR 6 (1863284)
S4 VALVE-CLOSED
SENSOR 4 (1864020)
S8 VALVE-MIDDLE
SENSOR 8 (1864021)
S2 STEPPER-HOME
SENSOR 2 (1864022)
S24. BRUSHUNITLEVEL
SENSOR 24 (1864071)
(option)
S1 CAN-PRESENT
SENSOR 1 (1864023)
(1863116)
CABLE 20 (1864019)
CABLE 19 (1864018)
FUSE 10AT 1602782
NETENTRY
SUPPLY 110/230VAC
50-60Hz, 10Amax
1272230
KEYBOARD
FLATSCREEN
SLP
1863146
POWERSUPPLY FOR FLATSCR.
RS232
USB
VGA
RS232 /USB
POWER
PC
OPTION HEATING
CABLE (1862586)
HEATER
THERMOSTAT
FAST & FLUID MANAGEMENT
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P.O.Box 220
2170AE SASSENHEIM
Tuesday, October 16, 2007
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Filename HA450.DSN
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Sheet 1
Revnr. 1.2
Date 16-10-2007
Drawn NvB
Remarks First version

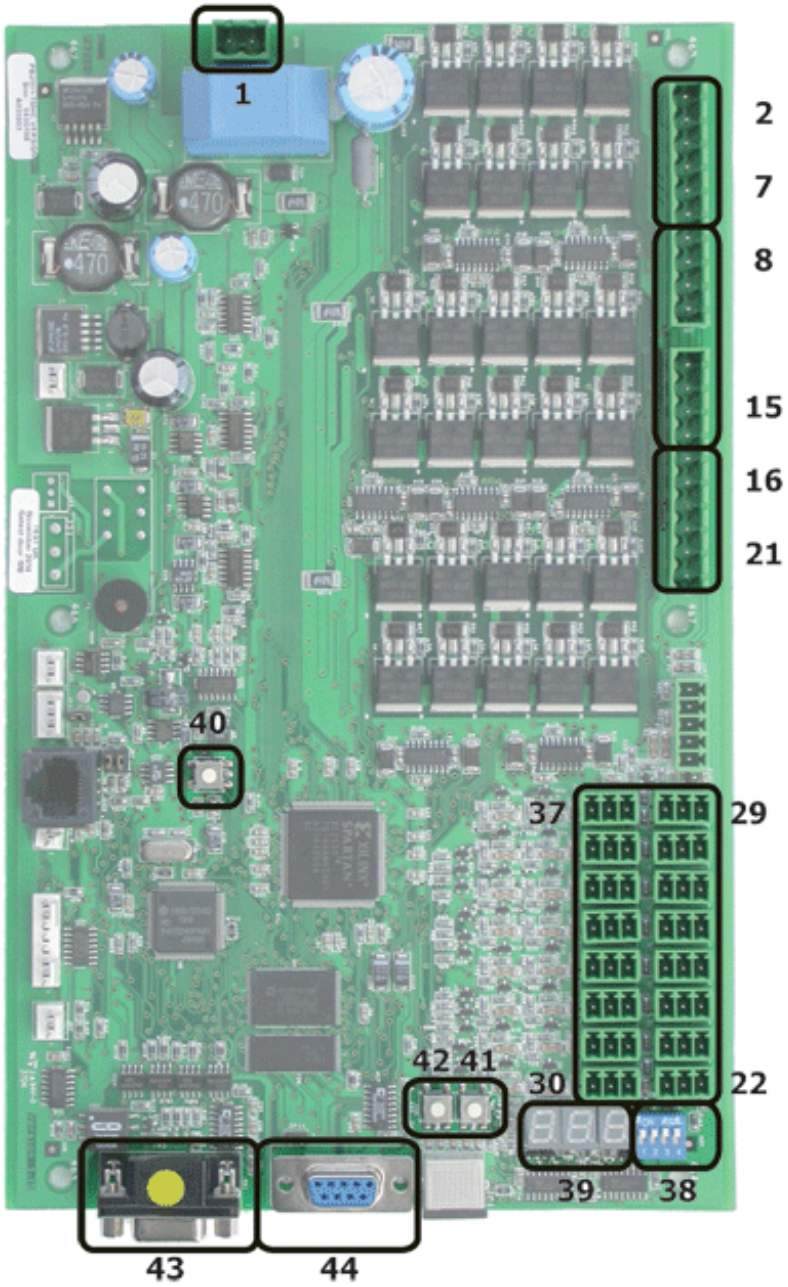


fig. 4-26

1. Power in (48VDC max.)
2. Output group3 (Agitator motor)
3. Output group3 (Agitator motor)
4. Output group3 (Brush motor)
5. Output group3 (Brush motor)
6. Output group3 (Cantable motor)
7. Output group3 (Cantable motor)
8. Output group2 (Valve motor)
9. Output group2 (Valve motor)
10. Output group2 (Turntable motor)
11. Output group2 (Turntable motor)
12. Output group2 (Level indicator)
13. Output group2 (Level indicator)
14. Output group2 (Refill valve)
15. Output group2 (Refill valve)
16. n.c.
17. n.c.
18. Output group1 (Stepper motor)
19. Output group1 (Stepper motor)
20. Output group1 (Stepper motor)
21. Output group1 (Stepper motor)
22. Input 1 (Brush unit level)
23. Input 2 (Valve middle)
24. Input 3 (Table position)
25. Input 4 (Switch plate)
26. Input 5 (Door switch)
27. Input 6 (Brush unit level)
28. Input 7 (Up/punch - down)
29. Input 8 (Up/punch - down)
30. Input 9 (Stepper home)
31. Input 10 (Valve closed)
32. Input 11 (Table home)
33. Input 12 (Can present)
34. Input 13 (Brush / Front door switch)
35. n.c.
36. Input 14 (Up/punch - down)
37. Input 16 (Up/punch - down)
38. Dipswitches
39. LED display
40. Switch 1: reset switch
41. Switch 2: service function.....
42. Switch 3: machine initialisation
43. RS232 IFC port
44. RS232 Upload / diag. port

A	Stepper motor, valve engine, brush motor, dosing process
B	Turning table motor
C	Stirring motor
D	Cantable up
E	Cantable down
F	Warning sound
1	Possible
2	Possible, slowly
3	Finish possible movement in course but will not start new movement
4	Finish recipe in course but will not start new recipe
5	Movement stopped immediately. The lifting platform will descend a bit.

Opening panel...		A	B	C	D	E	F
During machine activity	Upper cover	1	2	3	1	1	none
	Upper cover with [TAOD=0]*	3	3	3	1	1	#9
	Maintenance panel: 'mechanics'	3	3	3	1	1	#7
	Maintenance panel: 'brush container'	3	3	3	1	1	#7
	Switchplate	3	3	3	5	1	#8
During dispensing	Upper cover	1	2	3	1	1	none
	Upper cover with [TAOD=0]*	4	4	3	1	1	none
	Maintenance panel: 'mechanics'	4	4	3	1	1	#7
	Maintenance panel: 'brush container'	4	4	3	1	1	#7
	Switchplate	4	4	3	5	1	#8

*) TAOD-setting

If the turning table is not allowed to turn when the upper lid is opened, the parameter [TABLE ALLOWOPENDOOR] should be set to "0". If the value is set to "0", no new action will be started when the upper lid is open. A dispense will be finished when the upper lid is opened. By default it is set to "1"

HA450 audio signals:			
	Signal		
1	●●●▬▬▬●●●	S-O-S signal during stirring	No power on agitation motor
2	●●●▬▬▬●●●	S-O-S signal during rotation turning table.	No power on brush container motor
3	▬ ▬ ▬ ►	1 sec. on, 1 sec off... etc....	Stirring function cannot start because upper cover or mechanics panel is open
4	● ● ● ►	0,1-1sec. on (during an hour), 5 sec. off ... etc...	Filled brush container 5 x but no sign that it has been filled (only easy brush option)
5	●●●●●	5 x short	' Valve timeout '
6	●●	2x kort	beeper test during starting up / initializing
7	▬▬▬▬▬►	long, uninterrupted beep	panel open during dispense
8	▬▬▬▬▬►	long, uninterrupted beep	switchplate activated during dispense:
9	●	1x short	Start dispense (or turning table) when upper lid is open and software is configured to disallow this (Parameter TAOD=0)

Emergency stop switch	230VAC will be switched off, everything off.
NC-switches	When the conducts break or, in case of any other defect, the software will see this as if the door is open, and will react to it like an unsafe situation. The NC-switches are set to 'operate' as NO and to 'unsafe/stop' in NC.
Sensors	None of the sensors have a safety function.
Maintenance	For maintenance by a technician the safety can be switched off. This allows the machine to be operational without the panels. See "display codes": service function menu.
Lifting platform	To avoid damage to the machine, or to an object that has gotten stuck under the lifting table or injury to bodily parts, the downward movement power of the lifting platform has been limited.

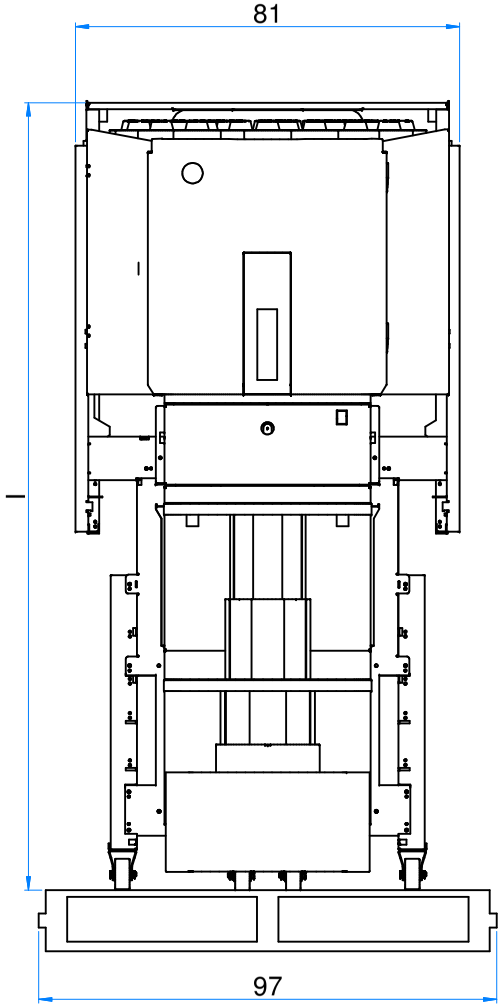
Error code		*Possible cause / solution*
000	NO_ERROR	
E01	MACHINE_NOT_INITIALIZED	Occurs when an action is requested before the machine is initialized.
E02	DOOR OPEN DURING DISPENSE	New machines will not dispense with the frontdoor opened.
E11	TABLE_RESOURCE_ERROR	Powerboard software error.
E12	TABLE_OVERCURRENT	Turntable motor (cable) shortage.
E13	TABLE_TIMEOUT	Turntable motor or sensor 5 / 6 sensor faillure.
E14	TABLE_POSITION_UNKNOWN	Turntable motor or sensor 5 / 6 sensor faillure.
E15	TABLE_BLOCKED_BY_VALVE	Reset/Initialize machine.
E16	TABLE_BLOCKED_BY_PUMP	Reset/Initialize machine.
E17	TABLE_ILLEGAL_POSITION_REQ.	Dispenser software configuration error.
E18	TABLE_HOME_NOT_FOUND	Sensor (cable) 5 faillure.
E31	VALVE_RESOURCE_ERROR	Powerboard software error.
E32	VALVE_OVERCURRENT	Valve motor (cable) shortage.
E33	VALVE_TIMEOUT	Valvemotor or sensor 4 / 8 faillure.
E34	VALVE_POSITION_UNKNOWN	Valvemotor or sensor 4 / 8 faillure.
E35	VALVE_BLOCKED_BY_TABLE	Reset/Initialize machine.
E41	PUMP_RESOURCE_ERROR	Powerboard software error.
E42	PUMP_OVERCURRENT	Pumpmotor (cable) shortage.
E43	PUMP_TIMEOUT	Pump blocked or motor / cable or sensor faillure.
E44	PUMP_POSITION_UNKNOWN	Pump (motor / cable) or sensor faillure.
E45	PUMP_NOT_HOME	Reset/Initialize machine.
E46	PUMP_HOME_TOO_SOON	Pump was blocked in up-stroke or motor / cable or sensor faillure.
E47	PUMP_BLOCKED_BY_TABLE	Reset/Initialize machine.
E48	PUMP_TOO_MANY_STEPS_REQ.	Dispenser software configuration error.
E49	PUMP_NO_CAN_PRESENT	Can missing.
E50	PUMP_VALVE_NOT_CLOSED	Reset/Initialize machine.
E61	CANTABLE_RESOURCE_ERROR	Powerboard software error.
E63	SWITCHPLATE ACTIVATED	New machines will not dispense with switchplate activated.
E71	AGITATION_RESOURCE_ERROR	Powerboard software error.
E72	AGITATION_DOOR_NOT_CLOSED	Some machines will not agitate with top door opened

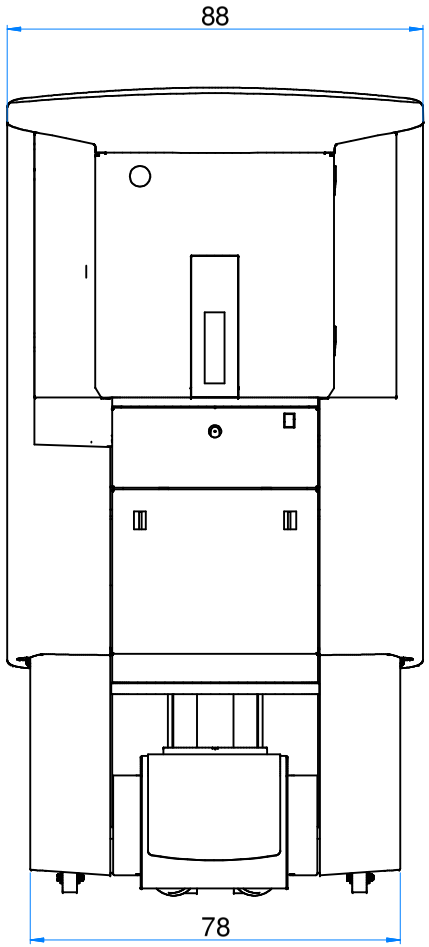
E81	BRUSH_RESOURCE_ERROR	Powerboard software error.
E82	HEATINGWIRE_RESOURCE_ERR.	Powerboard software error.
E83	HEATINGWIRE_BROKEN	Heatingwire (cable) faillure.
E91	MAGNET_RESOURCE_ERROR	Powerboard software error.
E92	ALARM_RESOURCE_ERROR	Powerboard software error.

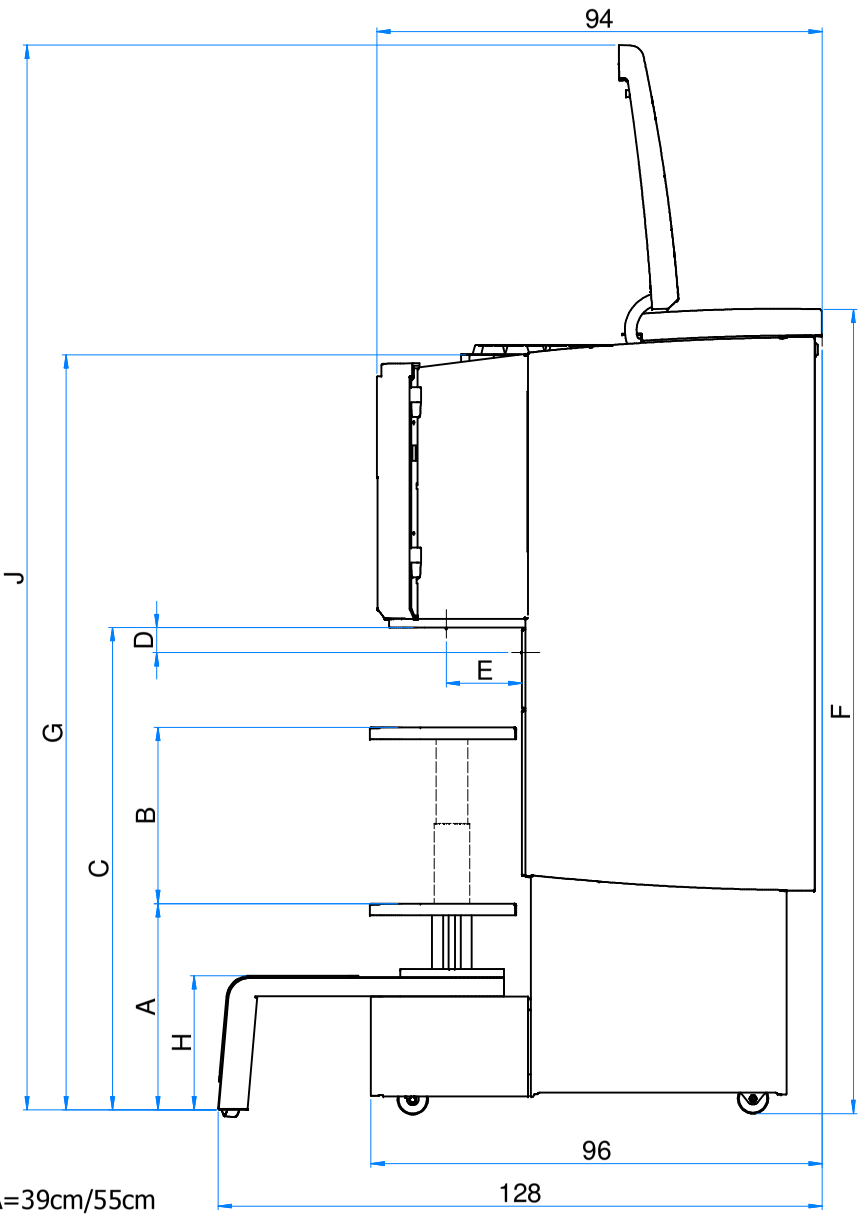
Startup code	*Explanation*
222	OS-version
d08	Defaultset version
524	Application version

Service code		*Function*
000		Exit service function menu
001	VAL	Shows the number of valve actions /1000 the board has done.
002	FDE	Dumps diagnostic information over the serialport.
003	DDS	Disables the doorswitches. Doorswitches will be enabled automaticly after 45minutes or after closing panels.
004	FIL	Fills the brushcontainer when needed with a timeout of 5 minutes.

Service function menu:
Press switch2 to enter the service function menu. Display(#39) will show [001]
Press switch2 again to increase the function-code on display
Press switch3 to execute displayed function







A=Min. cantable height	A=39cm/55cm
B=Travel distance cantable	B=33cm
C=Switchplate height	C=81cm/101cm
D=Distance from can sensor to switchplate	D=7cm
E=Distance from dispense point to backplate	E=16cm
F=Height of the machine	F=151cm/171cm
G=Canister height	G=140cm/160cm
H=Step height	H=28cm
I =Height of frame	I =147cm/167cm
J =Height of upper cover	J =206cm/226cm

ALL DIM'S ACC. TO NEN-ISO 2768 M UNLESS OTHERWISE SPECIFIED
0,5-6 ± 0.1 | 120-400 ± 0.5 | SHORTEST SIDE 50-120 ± 20'
6-30 ± 0.2 | 400-1000 ± 0.8 | < 10 ± 1' | 120-400 ± 10'
30-120 ± 0.3 | 1000-2000 ± 1.2 | 10-50 ± 30' | > 400 ± 5'

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DRAWING ACCORDING TO NEN-ISO 1101 NEN-ISO 406 NEN 3634

Projection

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THE TINTING COMPANY

Size: A2	Unit : CM	Date :14-9-2007
Project :	Drawn :	Assembly partnr:
Dim. :	Material :	
Name: HA450 dimensions		Partnr: **HA450**

Replacing board

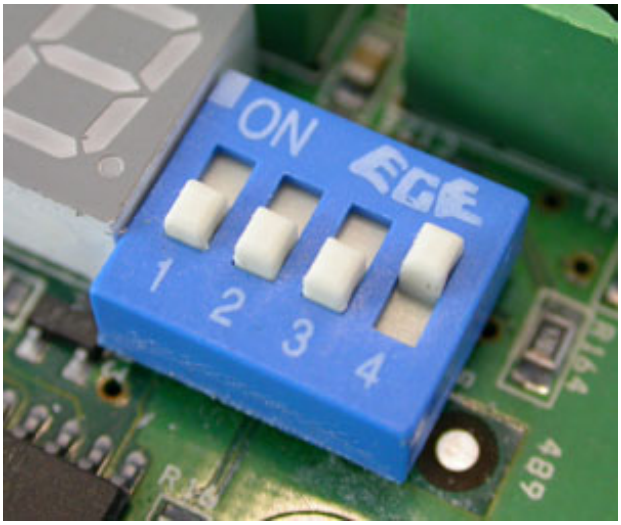
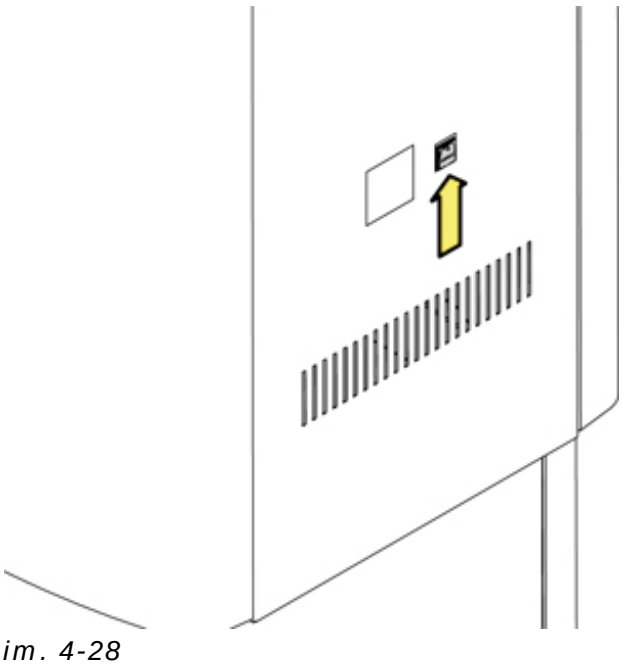


fig. 4-27

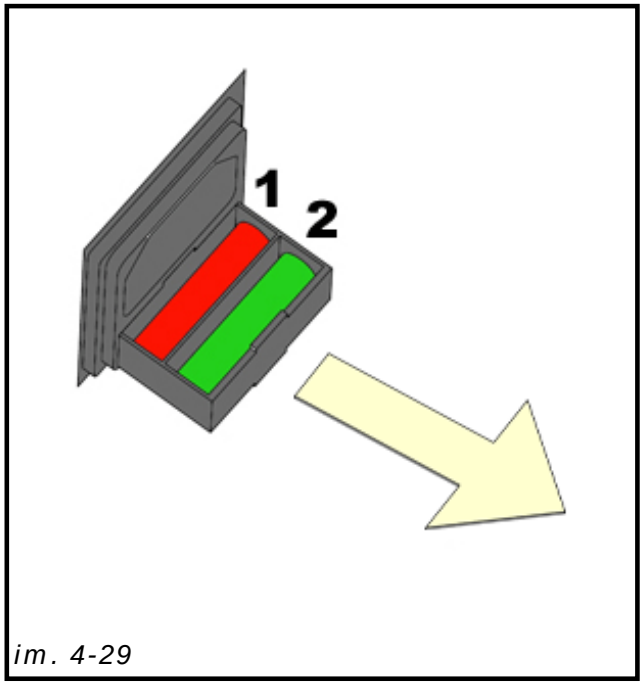
Replacing the board: a machine malfunction is rarely caused by the power board. FastFluid is reluctant to advise to replace the board. However, if it is necessary to do so, it is possible that the dispensing software will detect a license error. In this case please contact the service desk; they will help you deal with this. It is not necessary to load a new firmware version onto the board as the version by default is v522 or higher see:Board connections #38. Be careful with the 'DIP-switch': it should be set to 0001.

Fuses



im. 4-28

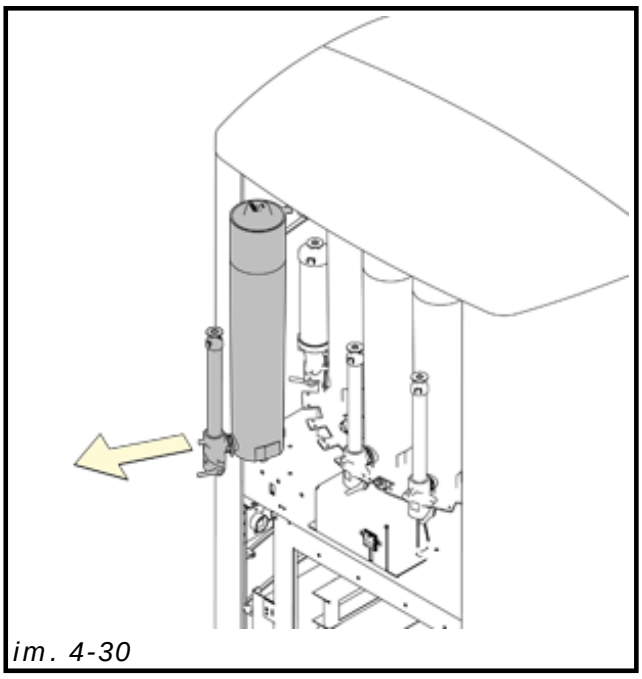
The fuse is at the back side under the net entry see:Dispenser summary #20.



im. 4-29

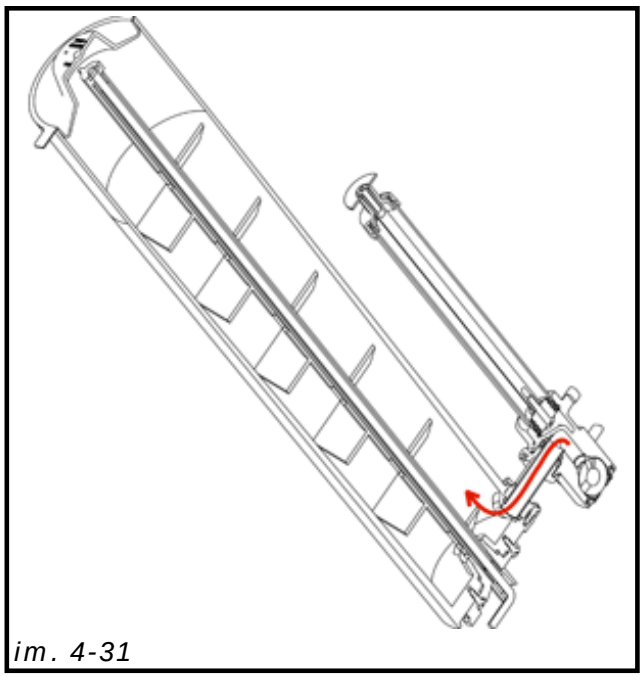
1. Used fuse
2. Spare fuse

replace pumps



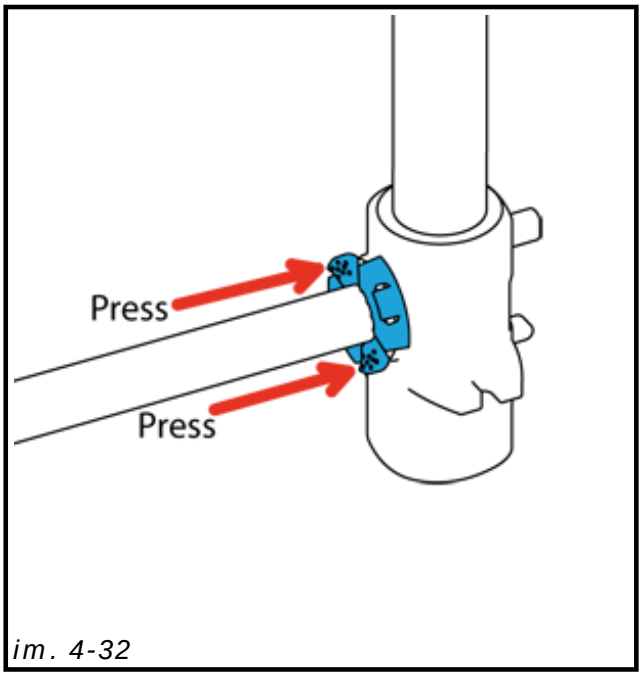
im. 4-30

Remove the back panel (see removing & reattaching panels) Detach the pump by loosening the 2 screws and slide the pump-canister-unit towards you.



im. 4-31

Slant the canister so all the colorant can run from the pump into the canister.



im. 4-32

Press the two lips to loosen the snap-connection between the pump & tube. Replace the pump.

Replace piston

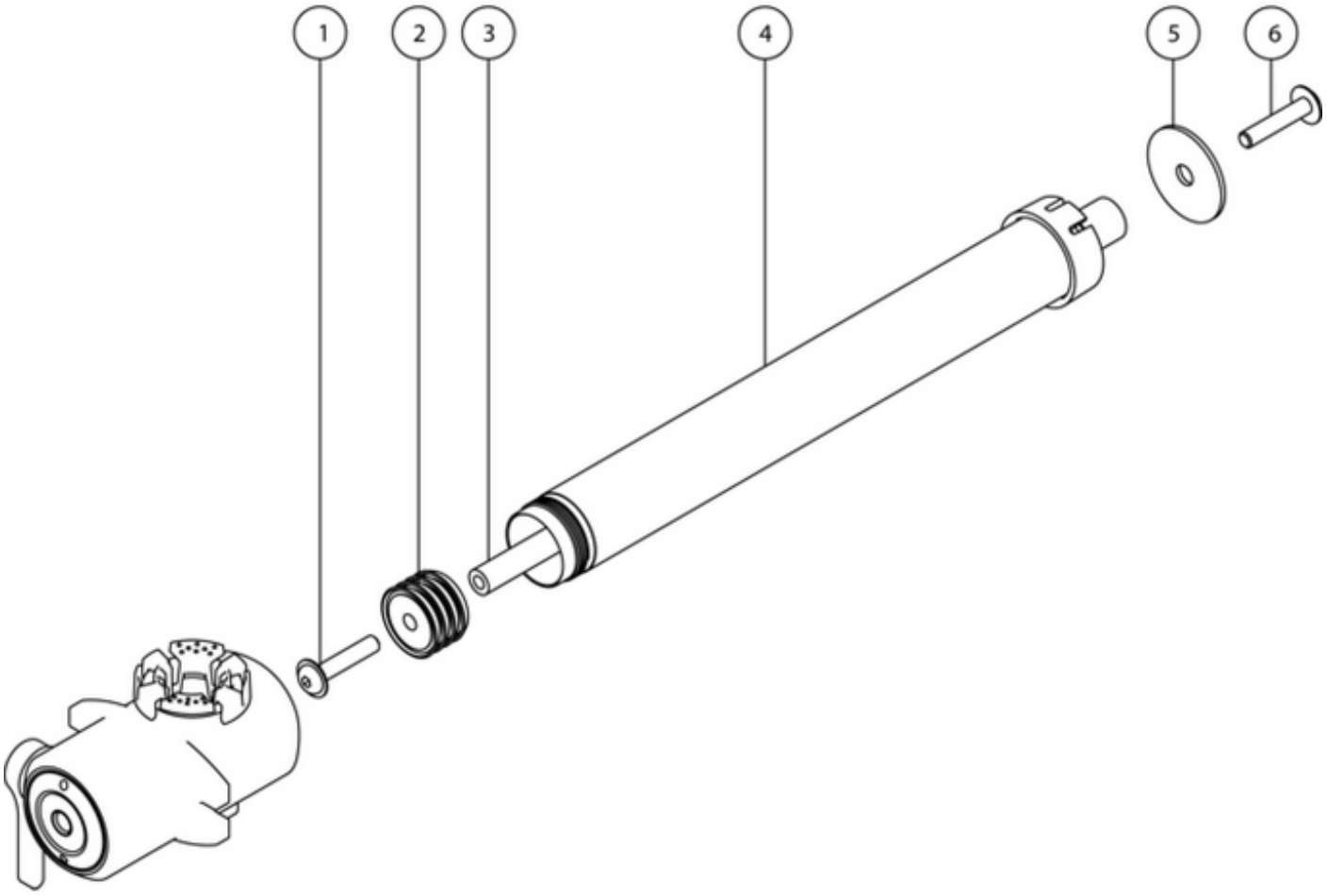
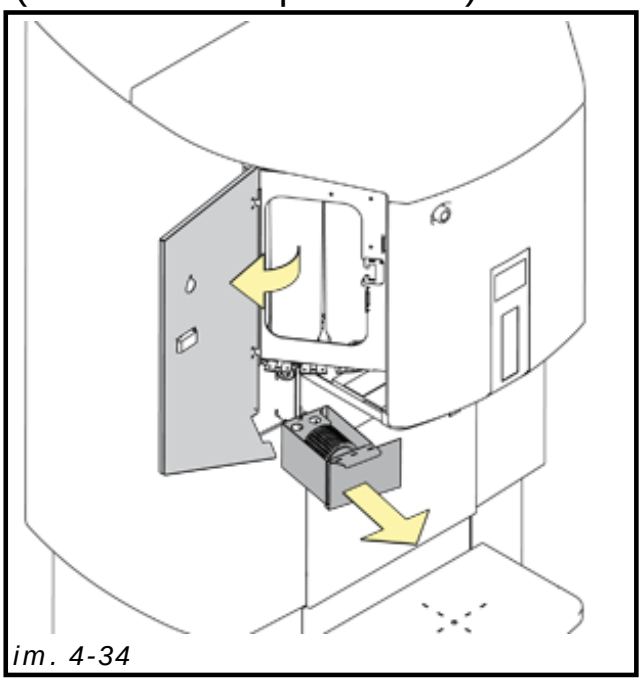


fig. 4-33

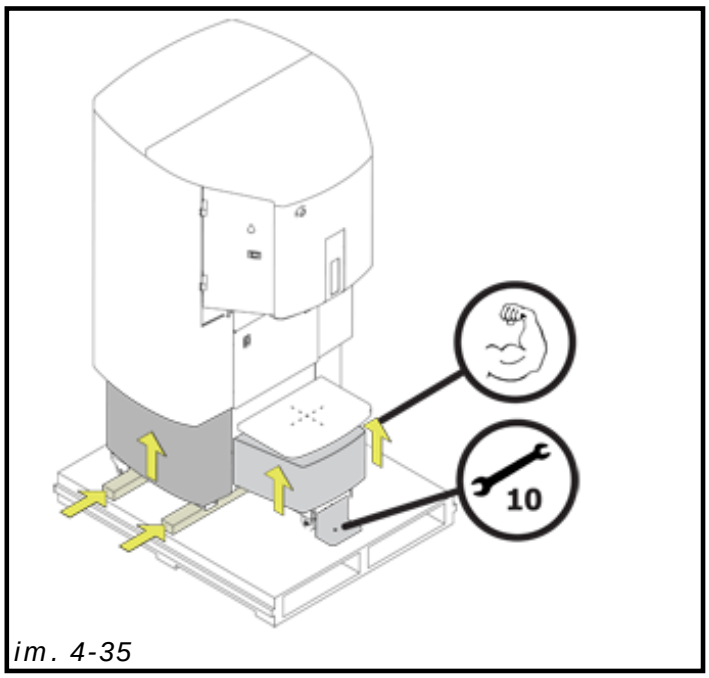
Unscrew the tube (#4) from the pump housing. Loosen the screw (#6) and remove the ring (#5). Push the piston rod with the piston pointed down en turn screw #1 to remove piston. Replace piston and glue screw #1 and #6 with Würth #0893 243 050. Mount the suction rod in the reverse order.

For transportation of dispenser to other location: (minimum requirement)



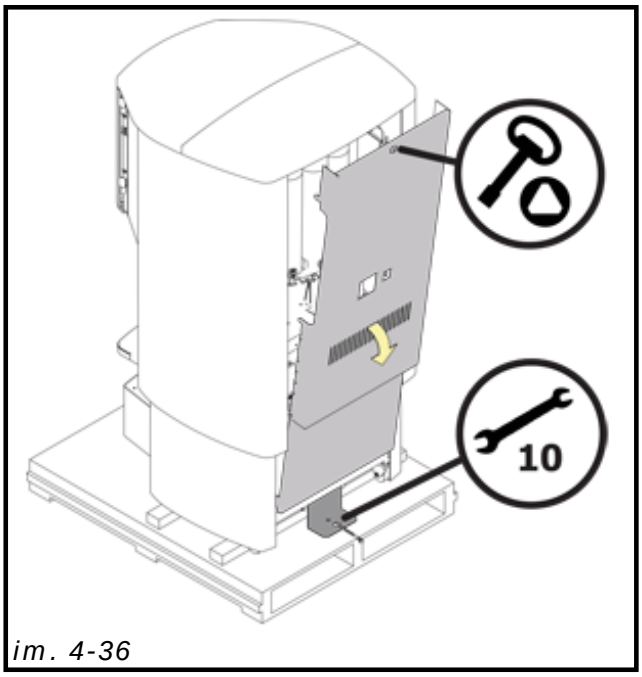
im. 4-34

Clean the brush container and empty it. If present empty the refill tank.



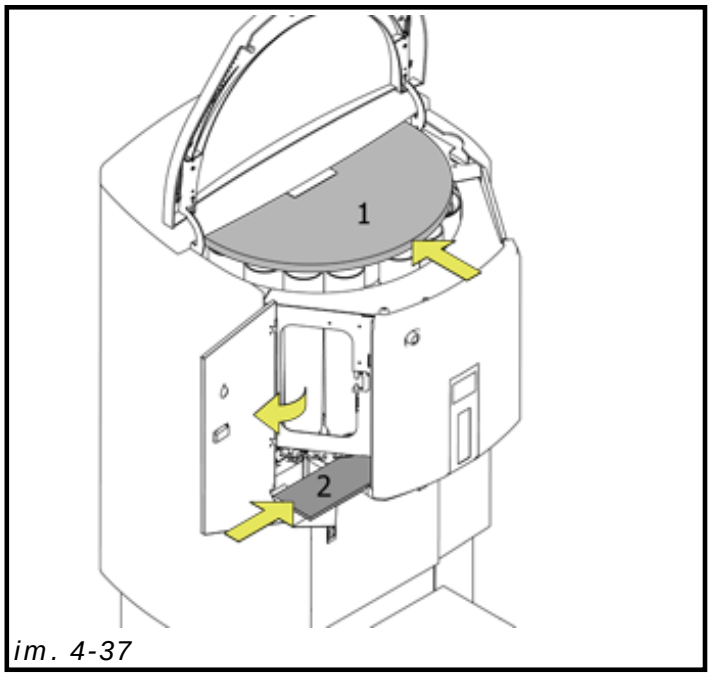
im. 4-35

Slide the lower side panels upwards and put the machine on the pallet. Place the beams back under the machine and attach the transportation bracket to the front. Click back the cantable-hood to avoid damage.



im. 4-36

Attach the transport brace to the back side.



im. 4-37

Place, if you have kept them, the foam parts back on and also the seal plastic with box.

- Without foam part #1 the canister lids may fall off and the paste may dry out.
- Without foam part #2 the loose switchplate might damage surrounding parts.

Telephone numbers

If needed, in case of any problems you can contact your supplier or the manufacturer. If you call the manufacturer, please have serial number and machine type ready. The serial number can be found on the frame, on the rear side of the machine next to the net entrysee:dispenser summary #20 or on the front side of the machine see:dispenser summary #15.

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Internet

For the most recent spare part list or manual see:
http://www.Fast-Fluid.com

Ordering spare parts

For ordering spare parts please consult:
http://www.idexconnect.com/

Or contact the spare parts center:

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